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Communications on observations made in the course of your studies are solicited; also exhibits of any specimens you consider of interest.

The printer of the "News" will furnish reprints of articles, without covers, over and above the twenty-five given free at the following rates: One or two pages, twenty-five copies, 35 cents; three or four pages, twenty-five copies, 70 cents; five to eight pages, twenty-five copies, $1.40; nine to twelve pages, twenty-five copies, $2.00; each half-tone plate, twenty-five copies, 30 cents; each plate of line cuts, twenty-five copies, 25 cents; greater numbers of copies will be at the corresponding multiples of these rates. Printed covers for 50 copies, $4.00 or more, according to number of pages bound.

ENTOMOLOGICAL NEWS

VOL. L. JANUARY, 1939 No. 1

Butterflies of a Wood Road at Suffolk, Virginia.

By AUSTIN H. CLARK and LEILA F. CLARK, U. S. National Museum, Washington, D. C.

Seventy-three species of butterflies we have found along a half-mile stretch of abandoned woodland road on the northwestern border of the Dismal Swamp parallel to a lumber railway on the outskirts of Suffolk, Virginia. Such a wealth of butterflies, including so many rarities, in a restricted and easily accessible locality is unusual and seems worth recording. Indeed, more species undoubtedly are to be found there, for our visits to the region have been few, and our time on each visit limited to a few hours. Furthermore, every visit has yielded species we had not seen before, and in the more or less immediate vicinity we have found nine additional species that might well occur there.

Perhaps the most interesting butterfly here is *Enodia creola* which is found in the cane (*Arundinaria gigantea*) along the road for a distance of about 150 feet. Here we once took twenty-one specimens in a couple of hours. Since then we have paid little attention to it, but have noted its constant presence. Everywhere along the road, except in this special region, *E. portlandia* is abundant.

Inconspicuous and always keeping near the ground, feeding on the flowers of violets, *Prunella* or *Elephantopus* according to season, is the little skipper *Amblyscirtes carolina*. It is not very common, but you may see as many as a dozen in the course of a morning. Usually you will see three or four—sometimes none. Much more numerous and conspicuous is *A. textor*, which is sometimes abundant. On two brief visits two days apart, just before the middle of June, Mr. and Mrs. E. L. Bell secured sixty and we secured fifty-eight, after which we passed them by.

From time to time you notice the strangely inert *Atrytone dion* in the grass, and occasionally the wary *Poanes yehl* or *Atrytone logan,* the last named of large size. Incidentally it is the northern form of *Atrytone dion* that is found here, not the smaller, darker, southern form (*alabamae*) found further northward in the Dahl Swamp in Accomac County on the Eastern Shore.

Near the trees burdened with mistletoe on the southern edge of the road you sometimes notice the unsuspicious and stupid *Atlides halesus,* and in the grass, if you look closely, you may find *Nymphidia pumila* perched head downward with wings outspread.

Naturally, all of the butterflies we have found here do not occur at the same season, nor are they equally abundant in different years. Most of the more unusual ones are commonest in a wet season—rain with intervals of sunshine.

In the course of our investigations we have covered every section of Nansemond, Norfolk and Princess Anne Counties. Most of this area, more or less extensively drained and intensively cultivated, is singularly devoid of butterflies, even of the commonest species. When butterflies do occur they are mainly the species of barren country and waste lands, or of weedy roadsides. In the height of the season many gardens yield no butterflies at all, while in others you find only *Vanessa virginiensis, Euptoieta claudia, Pieris rapae, Atalopedes campestris, Hylephila phylaeus* and *Panoquina ocola,* with an occasional swallowtail, usually *Papilio glaucus* or *P. troilus,* and sometimes *Terias lisa* and *Phoebis eubule.* Only in localized and usually widely separated regions are the more interesting species found.

There are some other spots that are very rich, perhaps as rich as this woodland road, but we have not worked them so intensively. And still others are notable for the occurrence in numbers of a particular species.

As an example, along the main highway (route 10) about two miles west of Spring Grove, Surry County, we have found *Argynnis diana* more numerous than we have ever seen it else-

where. Mrs. Barnes, who very kindly gave us permission to look over her garden, told us that she had seen as many as twenty-five at one time about her butterfly-bush.

The wood road is reached as follows: Starting from the Hotel Elliott opposite the Post Office at Suffolk you go southeast on Main Street for two blocks, then turn left onto Washington Street. Following Washington Street for about a mile you come to a fork with an Esso station in it. Bearing to the right on the White Marsh road past the Esso station you come in less than a mile to a lumber railway that crosses the road. Just beyond this railway crossing, on the left, is a large lumber yard. Turn to the left at the company store and, securing permission from the "boss-man," park your car in the lumber yard. Going to the lumber railway, you will see that it goes down a short incline into the Dismal Swamp. At the bottom of the incline leave the railway, cross the dry ditch on its north side and, passing through the brush, you immediately find yourself on the wood road.

The butterflies for which we have records from along this road and the nearby lumber railway are the following:

SATYRIDAE: *Neonympha gemma* (Hübner), *N. eurytus* (Fabricus), *N. sosybius* (Fabricius), *Cercyonis alope alope* (Fabricius), *Enodia portlandia portlandia* (Fabricius), *E. creola* (Skinner).

NYMPHALIDAE: *Polygonia interrogationis* (Fabricius), *P. comma* (Harris), *Nymphalis antiopa creta* (Verity), *Vanessa atalanta* (Linné), *V. virginiensis* (Drury), *V. cardui* (Linné), *Precis coenia* Hübner, *Basilarchia arthemis astyanax* (Fabricius), *B. archippus* (Cramer), *Phyciodes tharos* (Drury), *Argynnis diana* (Cramer), *A. cybele* (Fabricius), *Euptoieta claudia* (Cramer).

DANAIDAE: *Danaus plexippus* (Linné).

RIODINIDAE: *Nymphidia pumila* Boisduval and LeConte.

LYCAENIDAE: *Lycaenopsis argiolus pseudargiolus* (Boisduval and LeConte), *Everes comyntas* (Godart), *Atlides halesus* (Cramer), *Strymon m-album* (Boisduval and LeConte), *Strymon cecrops* (Fabricius), *Strymon melinus* (Hübner).

PIERIDAE: *Pieris rapae* (Linné), *P. protodice* Boisduval and LeConte, *Euchloë genutia* (Fabricius), *Phoebis eubule* (Linné), *Colias philodice philodice* Godart, *C. p. eurytheme*

Boisduval and LeConte, *Terias nicippe* (Cramer), *T. lisa* (Boisduval and LeConte).

PAPILIONIDAE: *Papilio philenor* Linné, *P. polyxenes asterius* Cramer, *P. cresphontes* Cramer, *P. glaucus* Linné, *P. troilus* Linné, *P. palamedes* Drury, *P. marcellus* Cramer.

HESPERIIDAE: *Epargyreus clarus* (Cramer), *Achalarus lyciades* (Geyer), *Thorybes bathyllus* (Smith), *T. pylades* (Scudder), *T. confusis* Bell, *Pyrgus communis* (Grote), *Pholisora catullus* (Fabricius), *Erynnis icelus* (Scudder and Burgess), *E. brizo* (Boisduval and LeConte), *E. juvenalis* (Fabricius), *E. horatius* (Scudder and Burgess), *E. terentius* (Scudder and Burgess), *Ancyloxypha numitor* (Fabricius), *Hylephila phylaeus* (Drury), *Atalopedes campestris* (Boisduval), *Polites verna* (W. H. Edwards), *P. manataaqua* (Harris), *P. themistocles* (Latreille), *P. peckius* (Kirby), *Wallengrenia otho egeremet* (Scudder), *Poanes zabulon* (Boisduval and LeConte), *P. yehl* (Skinner), *Atrytone aragos* (Boisduval and LeConte), *A. logan* (W. H. Edwards), *A. dion* (W. H. Edwards), *A. ruricola* (Boisduval), *Lerema accius* (Smith), *Amblyscirtes textor* (Hübner), *A. carolina* (Skinner) (and var. *reversa* Jones), *Lerodea l'herminier* (Latreille), *Panoquina ocola* (W. H. Edwards).

The butterflies of this region that we have not found along this woodland road are: *Neonympha areolatus areolatus* (Hübner), found a few miles southwest; *N. a. septentrionalis* Davis, a few miles south and southwest; *Satyrodes eurydice* (Linné), a few miles west; *Dione vanillae incarnata* Riley, a few miles northeast; *Mitoura gryneus* (Hübner), a few miles northwest; *Urbanus proteus* (Linné), a few miles east; *Pholisora hayhurstii* (W. H. Edwards), a couple of miles south; *Erynnis martialis* (Scudder), a few miles south; *Poanes viator* (W. H. Edwards), a few miles northwest; *Atrytone dukesi* Lindsey, gum swamp at North Landing; *Lerodea eufala* (W. H. Edwards), within a mile, in open fields; *Calpodes ethlius* (Cramer), a pest on canna in Suffolk in 1937.

Some of these undoubtedly occur along the woodland road from time to time, but others live in specialized habitats from which they do not stray. Still other species have been recorded from this region, but have not been found by us.

Mr. Frank Morton Jones deserves the credit for first having

called attention to this region, he having collected along the lumber railway. Mr. Ernest L. Bell was the next visitor. On two days last June we had the pleasure of visiting the wood road in company with Professor and Mrs. Charles T. Brues and Miss Alice Brues, and Mr. and Mrs. E. L. Bell. Others who have collected in this locality are Dr. G. W. Rawson of Detroit, Mr. W. Herbert Wagner of Washington, and Mr. John Boyd of Southern Pines, N. C. All of these have been so very kind as to send us their records.

A Bibliography of Keys for the Identification of Immature Insects. Part I. Diptera.

By Wm. P. Hayes, University of Illinois.

(Continued from Vol. XLIX, page 251.)

SIMULIIDAE.

Edwards, F. W. 1920. On the British species of *Simulium* II. The early stages; with corrections and additions to Part I. *Bull. Ent. Res.*, 11:211-246. (Key to species of larvae and pupae, pp. 219-223.)

Id. 1934. The Simuliidae (Diptera) of Java and Sumatra. *Archiv. Hydrobiol.*, Band 13, Suppl. Heft. 1, pp. 92-138. (Larval and pupal keys to species, pp. 101-103.)

Emery, W. T. 1913. The morphology and biology of *Simulium vittatum* and its distribution in Kansas. *Kansas Univ. Sci. Bul.*, 8:323-362. (Keys to larvae and pupae, pp. 350-351.)

Johannsen, O. A. 1903. [Simuliidae of the United States.] *N. Y. State Mus. Bul.* 68, pp. 336-388. (Key to larvae and pupae, pp. 353-354.)

Lutz, A. 1910. Segunda contribuicao para o conhecimento das especies brazileiras do genero Simulium. *Mem. Inst. Oswaldo Cruz.* 2:213-267. (Key to pupae of Brazilian species in Spanish and German, pp. 263-267.)

Malloch, J. R. 1914. American black-flies or buffalo-gnats. *U. S. Dept. Agr., Bur. Ent. Tech. Bull.* 26. (Table of larvae, p. 14, table of pupae, p. 15.)

Puri, I. M. 1925. On the life history and structure of the early stages of Simuliidae (Diptera). Parts I and II. *Parasitology*, Vol. 17, Pt. I, pp. 295-334, Pt. II, pp. 335-369. (In part II, key to full grown British larvae and pupae, pp. 334-337.)

TWINN, C. R. 1936. The black-flies of eastern Canada (Simuliidae, Diptera). *Canad. Jour. Res.* 14; Sec. D., pp. 97-130 and pp. 131-150. (Key to pupae.)

CHIRONOMIDAE.

SPÄRCH, R. 1922. Bieträge zur Kenntnis der Chironomiden-metamorphose. I-IV. Part I. Kronologische Ubersicht der bisher veröffentlichten Litteratur über Chironomidenlarven und Chironomidenmetamorphose. *Ent. Meddel.* 14: 32-109. (This has no keys but should be consulted by anyone interested in the life stages of this family,—a chronological history and good bibliography).

JOHANNSEN, O. A. 1905. Mayflies and midges of New York. *N. Y. State Mus. Bull.* 86: 76-331. (Keys to species of larvae and pupae, pp. 87-88.)

ID. 1937. Aquatic Diptera, Part III. Chironomidae: Subfamilies Tanypodinae, Diamesinae, and Orthocladiinae. *Cornell Agr. Exp. Sta. Mem.* 205, pp. 1-84, 18 pl.

KARNY, H. H. 1934. Biologie der Wasserinsekten. Fritz Wagner, Wien, 311 pp. (Key to genera and species of Tendipedidae-Chironomidae, pp. 208-213.)

KRÜGER, F. 1938. Tanytarsus-studien I. Die subsectio Atanytarsus. Zugleich variationsstatistiche Untersuchungen zum Problem der Artbildung bei Chironomiden. *Arch. Hydrobiol.* 33: 208-256. (Key species of larvae of Cladotanytarsus, pp. 221-222.)

LENZ, F. 1921. Chironomidenpuppen und Larven. Bestimmungstabellen. *Deutsche Ent. Zeit.*, 1921, pp. 148-162. (Keys to larvae and pupae.)

MALLOCH, J. R. 1915. Chironomidae or midges of Illinois, etc. *Bull. Ill. State Lab. Nat. Hist.*, 10: 275-543. (Keys to larvae and pupae, pp. 364-366 and 401-410.)

ID. 1917. Preliminary classification of Diptera, etc. Part I. (Part II was never published.) *Bull. Ill. State Lab. Nat. Hist.*, 12: 161-409. (Keys to subfamily, genera and species of larvae and pupae, p. 286-290.)

THIENEMANN, A. 1908. Über die Bestimmung der Chironomidenlarven und Puppen. *Zool. Anz.* 33: 753-756. (Key to genera of larvae and pupae, pp. 754-756.)

ID. 1914-1921. Vorarbeiten fur eine Monographie der Chironomiden-Metamorphose. *Archiv. Hydrobiol.* Suppl. Band II. 850 pp. This work, edited by Thienemann, contains the following papers by various authors which contain keys to Chironomidae.

BAUSE, E. 1914. Die Metamorphose der Gattung *Tanytarsus*

und einiger verwanter Tenipediden-arten. pp. 1-128. (Larval key to species, pp. 42-46, pupal key to species, pp. 89-93.)

GRIPEKOVEN, H. 1914. Minierende Tendipediden. pp. 129-230. (Various keys to larvae and pupae of these leaf-mining Chironomids.)

POTTHAST, A. 1915. Uber die Metamorphose der Orthocladius-Gruppe. pp. 243-376. (Key to species of larvae and pupae, pp. 252-257.)

REITH, J. T. 1915. Die Metamorphose der Culicoiden (Ceratopoginen). Pp. 377-442. (Various keys to larvae and pupae.)

THIENEMANN, A. 1921. Metamorphose der Tanypinen. Part I, pp. 566-654; Part II, pp. 655-784. (Keys to larvae and pupae, pp. 667-674; see also tables after p. 644.)

ID. 1921. Die Metamorphose der Chironomidengattungen Camptocladius, Dyscamptocladius und Phaenocladius mit Bemerkungen über die Artdifferenzierung bei den Chironomiden überhaüpt. Pp. 809-850. (Various keys to larvae and pupae of these genera.)

THIENEMANN, A. 1924. Über die Chironomidengattung *Lundstromia* nebst einer Bestimmungstabelle für die Larven und Puppen der Sectio *Tanytarsus*. *Zool. Anz.* 58: 331-345. (Key to genera and species of larvae and pupae, pp. 331-345.)

ID. 1928. Chironomiden-Metamorphosen I. *Archiv. Hydrobiol.* 19: 585-623. (Various keys to larvae and pupae of Ceratopogininae.)

ID. 1929. Chironomiden Metamorphosen II-Die Sectio Tanytarsus genuinus. *Archiv. Hydrobiol.* 20: 93-123. (Various keys to larvae and pupae of this group.)

ID. 1934. Chironomiden-Metamorphosen III. Zur metamorphose der Orthocladiariae. *Deut. Ent. Zeit.* for 1933, p. 1-38. (Various keys to larvae and pupae.)

ID. 1935. Chironomiden-Metamorphosen. X. Orthocladius-Dactylocladius (Diptera). *Stettin. Ent. Ztg.* 96: 201-224.

ID. 1935. Chironomiden-Metamorphosen XII. *Deutsche. Ent. Zeit. Jahrgang* 1935 Heft, 1 and 2, p. 86-96. (Pupal key to sp. of *Brilla*, p. 94.)

ID. 1936. Chironomiden-Metamorphosen XI. Die Gattung Eukiefferiella. *Stett. Ent. Zeit.* 97: 43-65. (Larval key pp. 45-47 and pupal key pp. 48-50.)

ID. 1936. Chironomiden-Metamorphosen XIII (Diptera). Die Gattung Dyscamptocladius Thien. *Mitt. der Deut. Ent. Gesell. E. V.* 7: 49-54. (Key to species of larvae and pupae, pp. 50-52.)

ID. 1937. Chironomiden aus Lapland. III. Beschreibung neuer Metamorphosen, mit einer Bestimmungstabelle der bisher bekannten Metriocnemuslarven und-puppen. *Stett. Ent. Zeit.*, 98: 165-185. (Larval and pupal keys to species of Metriocnemus.)

THIENEMANN, A. and O. HARNISCH, 1932. Chironomiden Metamorphosen IV. Die Gattung *Cricotopus*. *Zool. Anz.* 99: 133-143. (Keys to a few genera included in the Cricotopus group.)

THIENEMANN, A. and K. MAYER. 1933. Chironomiden Metamorphosen VI. *Zool. Anz.*, 103: 1-12. Larval and pupal keys to species of the Diamesa group, pp. 9-12.)

ZARVEL, J. 1928. Die Jugendstadien der Tribus Corynoneurariae. *Archiv. Hydrobiol.* 19: 651-665. (Keys to larvae and pupae of genera and species, pp. 662-665.)

ID. 1933. Larven und Puppen der Tanypodin von Sumatra und Java. *Archiv. Hydrobiol.*, Suppl. Band 11, pp. 604-624.

ID. 1934. Tanytarsus larven und puppen aus Niederländisch-Indien. *Archiv. Hydrobiol.*, Suppl. Band 13. Heft 1. Pp. 139-165. (Contains various keys to species of larvae and pupae.)

CERATOPOGONIDAE.

KARNY, H. H. 1934. Biologie der Wasserinsekten. Fritz Wagner, Wien, 311 pp. (Key to genera, pp. 207-208.)

KIEFFER, J. J. 1901. Zur Kenntniss der Certopogon-larven. *Algm. Zeit. Ent.*, 6: 216-220. (Key to species, pp. 216-217.)

LENZ, F. 1934. Die Metamorphose der Heleidae. In: *Die Fliegen der Palaerktischen Region* by *E. Lindner*. Lief. 78: 95-128. (Key to genera of larvae and pupa, pp. 98-99; and various keys to species.)

MALLOCH, J. R. 1915. Chironomidae, or midges of Illinois. *Bull. Ill. State Nat. Hist. Surv.*, Vol 10, pp. 275-543. (See also Malloch, 1917, in general list.)

MAYER, K. 1934. Ceratopogoniden-Metamorphosen (*C. intermediae* and *C. vermiformes*) der Deutschen Limnologischen Sundra-Expedition. *Archiv. Hydrobiol.*, Suppl. Band 13, Heft 1, pp. 166-202. (Keys to eggs, larvae and pupae of the two groups cited in title, pp. 170-172 and 182-185.)

REITH, J. T. 1915. Die Metamorphose der Culicoiden (Ceratopogonien). *Archiv. Hydrobiol.*, Suppl. Band 2, pp. 377-442. (Various keys to larvae and pupae.)

THIENEMANN, A. 1928. Chironomiden Metamorphosen I. *Archiv. Hydrobiol.*, 19: 585-623. (Various keys to larvae and pupae.)

PSYCHODIDAE.

HALIDAY, A. H. 1856. Psychodidae. In: *Walker, British Diptera,* Vol. 3, pp, 253-263. (Key to genera of larvae, p. 25.)

HAZEMAN, L. 1907. A monograph of North American Psychodidae. *Trans. Amer. Ent. Soc.,* 33: 299-333. (Key to three European larval genera, p. 325.)

MIALL, L. C. and N. WALKER. 1895. The life-history of *Pericoma canescens* (Psychodidae). *Trans. Ent. Soc. Lond.,* for 1895, pp. 141-153. (A reprint of Haliday's key, p. 150.)

MUTTKOWSKI, R. A. 1915. New insect life histories I. *Bull. Wis. Nat. Hist. Soc.,* 13: 109-122. (Key to North American larvae, pp. 111-112.)

See also: Johannsen, 1934, and Malloch, 1917, in general list.

DIXIDAE.

GOETGHEBUER, M. 1921. Les Dixidae de Belgique. *Bull. Soc. Ent. Belg.,* 3: 183-188. (Key to larvae; paper not seen.)

SMITH, F. K. 1928. Larval characters of the genus Dixa. *Jour. N. Y. Ent. Soc.,* 36: 263-284. (Key to species of larvae.)

See also: Johannsen, 1903 and 1934, in general list.

CULICIDAE.

BRAGA, J. M. 1931. Culicideos de Portugal. Aránjo and Sobrinko, Porto. (Keys to larvae of Culex, pp. 31-32; Aedes, pp. 52-53, and Anopheles, pp. 73-74.)

BUXTON, P. A. and G. H. E. HOPKINS. 1925. The early stages of Samoan Mosquitoes. *Bull. Ent. Res.,* 15: 295-301. (Key to larvae and pupae, p. 301.)

CHRISTOPHERS, S. R. 1933. Culicidae, tribe Anophelini. In: *Fauna of British India.* Diptera, Vol. 4. (Key to larvae, pp. 84-90; eggs, 90-94.)

COOLING, L. E. 1924. Larval stages and biology of the commoner Australian Mosquitoes. *Comm. Aust. Dept. Health Service,* Melbourne, Publ. No. 8, pp. 1-40. (Paper not seen.)

DYAR, H. G. 1906. Larvae of Culicidae classified as independent organisms. *Jour. N. Y. Ent. Soc.,* 14: 169-230. (Many keys throughout the work.)

ID. 1906. Key to the known larvae of the mosquitoes of the United States. *U. S. Dept. Agr. Bur. Ent. Circ.,* 72: 1-6.

ID. 1928. The mosquitoes of the Americas. *Carnegie Inst. Wash.,* Pub. 387. 616 pp., 123 pls. (Various keys to larvae, no pupal keys.)

EDWARDS, F. W. 1912. Revised keys to the known larvae of African Culicinae. *Bull. Ent. Res.,* 3: 373-385. (Key to genera and species, p. 373.)

ID. 1912. A revision of the mosquitoes of the palaearctic region. *Bull. Ent. Res.*, 12:263-351. (Several keys to larvae of various genera.)

ID. 1932. Culicidae. *Gen. Ins.*, Fasc. 194, pp. 1-258. (Various larval keys to genera of the world.)

FELT, E. P. 1904. Mosquitoes or Culicidae of New York State. *N. Y. Mus. Bull.* 79, Ent. 22, pp. 241-400. (Larval key, p. 279.)

FOX, C. 1925. Insects and disease of man. Blakiston's Son and Co., Phila., 349 pp. (Keys to larvae from Howard, Dyar, and Knab, pp. 28, 30, and 32.)

GRÜNBERG, K. 1910. [Genera of German Culicidae.] In: *Brauer, Süsswasserfauna Deutschlands*, Heft 2A. 312 pp. Fischer, Jena. (Key to larval genera, p. 80.)

HEADLEE, T. J. 1921. Mosquitoes of New Jersey. *N. J. Agr. Exp. Sta.*, Bull. 348, 229 pp. (Key to larvae, pp. 20-23; "eye and hand lens key" to larvae, p. 30.)

HEGNER, R., F. M. ROOT, and D. L. AUGUSTINE. 1929. Animal parasitology with special reference to man and domesticated animals. Century Biol. Series, Century Co., N. Y., 731 pp. (Larval key to tribes, p. 482; *Anopheles*, p. 497; various genera, p. 520 and p. 522.)

HERMS, W. B. 1923. Medical and veterinary entomology. 2nd ed., 462 pp. Macmillan Co., N. Y. (Larval keys to *Anopheles* from Howard, Dyar and Knab, p. 126.)

HOPKINS, G. H. E. 1936. Mosquitoes of the Ethiopian region I. Larval bionomics of mosquitoes and taxonomy of culicine larvae. London. (British Museum.) 1936, 250 pp. (Various larval keys to species.)

HOWARD, L. O., H. G. DYAR and F. KNAB. 1914-1917. The mosquitoes of North and Central America and the West Indies. 4 Vols., Carnegie Inst., Wash., D. C. (Various larval keys in Vols. 2 and 3.)

INGRAM, A. and J. W. S. MACFIE. 1917. Notes on some distinctive points in the pupae of West African mosquitoes. *Bull. Ent. Res.*, 8:73-91. (Keys to species of pupae.)

JAMES, S. P. and W. G. LISTON. 1911. A monograph of the anopheline mosquitoes of India. Thacker, Spink & Co., Calcutta, 128 pp. (Key to genera and species of larvae, pp. 50-58.)

JOHANNSEN, O. A. 1903. Culicidae. In: *N. Y. St. Mus., Bull.* 68, pp. 388-429. (Key to genera of larvae and pupae, pp. 391-392; species of *Culex*, p. 415; *Aedes*, p. 425; *Corethra*, p. 393.)

(To be continued.)

A Synopsis of the Odonata of Alaska.

By LEONORA K. GLOYD, Chicago Academy of Sciences,
Chicago, Illinois.

Until recently most of the specimens of Odonata recorded from Alaska were taken by men whose task was to gather as many objects of natural history as time and facilities permitted, by collectors who were obliged to obtain as many specimens in all orders of insects as possible, or by men in other fields of activity who took time from their own work to capture a few insects for entomological friends. Naturally the Odonata, a group often difficult to catch and to preserve, would not be well represented in such collections.

The first dragonflies reported from Alaska (Hagen 1856, 1857 and 1861), representing four species, were taken between 1823 and 1839 in the vicinity of Sitka, Norton Sound and Kenai Island, by some adventurous Russian explorers who skirted the north Pacific coast-line from the Kurile Islands north of Japan to San Francisco, California. Apparently the next specimens taken (Hagen 1875, Walker 1912 and 1925) are from Fort Yukon, collected by W. H. Dall, probably during his survey of The Yukon River in 1867. In 1890 Hagen recorded another species from Sitka but did not give the date of collection or the name of the collector. In 1894, J. A. Cadenhead secured a specimen from Burrough's Bay (Walker, 1912). In 1899 members of the Harriman Alaska Expedition obtained eight species, six of which were new to the known fauna (Currie 1901, 1904); later in the same year Rev. S. Hall Young and J. Murray Presnall collected two dragonflies from the interior between Mission and Forty-Mile Creeks and at Eagle City (Holland, 1900). In 1908 another species was recorded without data by Martin. Sometime prior to 1917 a species new to the fauna was taken by A. Stecker from the Kuskokwim River (Kennedy 1917 and Walker 1925). Except for a series of specimens of a previously reported species collected in 1917 by J. S. Hine at Katmai (Walker 1925), apparently no more were taken until 1933 when R. R. Sheppard, a student from

the University of Florida, visited Admiralty Island, securing ten species and adding three to the list (Gloyd 1938). Thus, almost a hundred years of incidental collecting yielded only a total of eighteen species. Then in the summer of 1937 Carsten Ahrens went to Alaska primarily for the purpose of collecting Odonata and, although the season was unusually cold, was successful not only in finding all but four of the previously reported species but also six additional ones (Ahrens 1938).

From this review of the literature it is evident that few collections have been recorded and that little is known about the distribution of even the most common species in the region. Many of the records are in diverse publications some of which are now difficult of access and it is hoped that the following synopsis and bibliography may facilitate the studies of others and may help to increase interest in the odonate fauna of this far north land.

References under each species are given in chronological order and those repeating earlier records are omitted in the list unless they are of taxonomic importance. As much as permitted by available data, the earliest and latest dates of collection are also included.

LEUCORRHINIA BOREALIS Hagen. Anchorage, Gulkana (Ahrens 1938*b*, p. 227). July 17-27.

L. HUDSONICA (Selys). Kukak Bay, Virgin Bay (Prince William Sound) (Currie 1901, pp. 221-222); Admiralty Island (Gloyd 1938, p. 199); Chitina, Gulkana, Juneau, Ketchikan (Ahrens 1938*b*, p. 226). June 25-August 26.

L. PROXIMA Calvert. Anchorage (Ahrens 1938*b*, p. 227). July 22.

LIBELLULA QUADRIMACULATA Linné. Fox Point (Currie 1901, p. 221, as *Leptetrum quadrimaculata*); Juneau (Ahrens 1938*b*, p. 226). July 11-26.

SYMPETRUM DANAE (Sulzer). Admiralty Island (Gloyd 1938, pp. 198, 199); Juneau (Ahrens 1938*b*, p. 226). August 5-21.

S. DECISUM (Hagen). Chitina (Ahrens 1938*b*, p. 226). July 28.

CORDULIA SHURTLEFFI Scudder. Kukak Bay, Fox Point (Currie 1901, p. 220); Anchorage, Gulkana, Juneau, Palmer *(Ahrens 1938*b*, p. 226); Fort Yukon.[1] June 25-July 26.

SOMATOCHLORA ALBICINCTA (Burmeister). Fort Yukon (Hagen 1875, pp. 59-60, as *Epitheca albicincta*); Kodiak, Kukak Bay (Currie 1901, p. 221; Walker 1925, p. 172); Katmai (Walker 1925, p. 173); Admiralty Island (Gloyd 1938, p. 199); Anchorage, Juneau, Palmer (Ahrens 1938*b*, p. 226). June 25-August 26.

S. HUDSONICA (Hagen). Fort Yukon (Walker 1925, p. 180). June 25.

S. SAHLBERGI Trybom. Kuskokwim River (Kennedy 1917, pp. 229-236, pl. 13, as *walkeri* n. sp.; Walker 1925, pp. 163-167).

S. SEMICIRCULARIS (Selys). Admiralty Island (Gloyd 1938, pp. 198, 199); Juneau (Ahrens 1938*b*, p. 226). July 11-August 25.

AESHNA EREMITA Scudder.[2] Alaska (Martin 1908, p. 37, as *clepsydra;* Muttkowski 1910, p. 111); Bethel, Kuskokwim River[3] (Walker 1912, p. 126); Admiralty Island (Gloyd 1938, p. 199); Anchorage, Chitina, Gulkana, Palmer (Ahrens 1938*b*, p. 226). July 19-August 19.

AE. INTERRUPTA INTERRUPTA Walker. Admiralty Island (Gloyd 1938, pp. 198, 199); Ketchikan (Ahrens 1938*b*, p. 226). July 8-August 19.

AE. INTERRUPTA LINEATA Walker. Chitina, Palmer (Ahrens 1938*b*, p. 226). July 19-28.

AE. JUNCEA (Linné). Kenai Island, Norton Sound (Hagen 1856, pp. 369, 380; 1861, pp. 120-121); Kodiak, Unga Island

[1] Hagen, 1875, p. 60, says "The specimen from Ft. Yukon, Alaska, quoted as *C. Shurtleffi* Dall, belongs to a different species," but no other reference to this specimen was found in the literature. However, in 1935, I examined 5♂ 3♀, collected June 25 by W. H. Dall at Fort Yukon, of *C. shurtleffi* in the U. S. National Museum.

* After the present paper was in type it was noted that Mr. Ahrens in his published list records this locality as "Matanuska Valley."

[2] Currie, 1901, lists *Aeshna clepsydra* (Say) (= *eremita*, Walker 1912, p. 119) as previously reported, but from the literature cited by him I found no definite Alaskan record.

[3] Recorded as Kuskoquin River by Walker, *ll. cc.*

(Shumagin Islands), Nushagak River (Currie 1901, pp. 219-220; Walker 1912, p. 91); Bethel, Kuskokwim River[3] (Walker 1912, p. 91); Admiralty Island (Gloyd 1938, p. 199); Anchorage, Gulkana, Juneau, Ketchikan, Palmer, Seward, Valdez (Ahrens 1938*a*, pp. 8-9, 26; 1938*b*, p. 226). July 11-August 25.

AE. PALMATA Hagen. Kodiak, Cook Inlet (Currie 1901, pp. 219-220, as *constricta* (Say); Walker 1912, p. 163); Admiralty Island (Gloyd 1938, p. 199); Juneau, Palmer (Ahrens 1938*b*, p. 225). July 11-August 21.

AE. SITCHENSIS Hagen. Sitka (Hagen 1861, pp. 119-120, type description; 1890*b*, pp. 353-355); Burrough's Bay (Walker 1912, p. 83); Juneau, Palmer (Ahrens 1938*b*, p. 225). July 19-August 6.

ANAX JUNIUS (Drury). Sitka (Hagen 1890*a*, p. 306); mountains between Mission and Forty-Mile Creeks, Eagle City (Holland 1900, p. 382). July 25-August 3.

CORDULEGASTER DORSALIS Hagen. Sitka (Hagen 1856, pp. 367, 381; *in* Selys 1857, p. 347, type description; 1861; p. 116; 1875; p. 50).

AGRION RESOLUTUM Hagen. Anchorage, Gulkana, Palmer (Ahrens 1938*b*, p. 227). July 17-27.

ENALLAGMA BOREALE Selys. Cook Inlet, Juneau, Kukak Bay (Currie 1901, pp. 218-219, as *calverti* Morse); Admiralty Island (Gloyd 1938, p. 199); Gulkana, Awk Lake (Juneau), Matanuska, Palmer (Ahrens 1938*b*, p. 227). June 29-August 25.

E. CYATHIGERUM (Charpentier). Sitka (Hagen 1856, pp. 367, 381; 1861, p. 87, as *Agrion annexum*, n. sp.); Admiralty Island (Gloyd 1938, p. 200); Awk Lake (Juneau), Palmer (Ahrens 1938*b*, p. 227). July 19-August 26.

LESTES DISJUNCTUS Selys. Fox Point (Currie 1901, p. 217, as *Lestes* sp.; Muttkowski 1910, p. 37); Admiralty Island (Gloyd 1938, p. 200); Anchorage, Gulkana, Juneau, Palmer (Ahrens 1938*b*, p. 227). July 19-August 26.

L. DRYAS Kirby (*uncatus* Kirby). Chitina (Ahrens 1938, p. 227). July 28.

Hagen (1856, p. 381) mentioned *Aeshna borealis* Zett. (= *caerulea* Ström) from Sitka "von Brandt in Hamburg" but I regard this record as questionable. While it is possible that this may represent *A. caerulea septentrionalis* Burm., Hagen's reference is not included in the synonymy of this species by Walker (1912, p. 76) and its occurrence in Alaska has not been verified.

BIBLIOGRAPHY.

AHRENS, CARSTEN. 1938*a*. The commonest snakefeeder. The Alaska Sportsman, vol. 4, no. 5, pp. 8-9, 26.

ID. 1938*b*. A List of Dragonflies (Odonata) taken in Southern Alaska. Ent. News, vol. 49, no. 8, pp. 225-227.

CURRIE, ROLLA P. 1901. Papers from the Harriman Alaska Expedition. XXII. Entomological Results (14): The Odonata. Proc. Washington Acad. Sci., vol. 3, pp. 217-223. Reprinted in 1904 *in* Harriman Alaska Expedition, vol. 8, pp. 145-153.

GLOYD, LEONORA K. 1938. Notes on some dragonflies (Odonata) from Admiralty Island, Alaska. Ent. News, vol. 49, no. 7, pp. 198-200.

HAGEN, HERMANN. 1856. Die Odonaten-Fauna des russichen Reichs. Stettin ent. Zeitung., vol. 17, pp. 363-381.

ID. 1861. Synopsis of the Neuroptera of North America, with a list of the South American species. Smithsonian Misc. Coll., pp. xx + 1-347.

ID. 1875. Synopsis of the Odonata of North America. Proc. Boston Soc. Nat. Hist., vol. 18, pp. 20-96.

ID. 1890*a*. Synopsis of the Odonata of North America, No. 2. The genus Anax. Psyche, vol. 5, Feb., pp. 303-308.

ID. 1890*b*. Two species of Aeschna. Psyche, vol. 5, June, pp. 353-355.

HOLLAND, W. J. 1900. Alaska insects. Ent. News, vol. 11, no. 3, pp. 381-389.

KENNEDY, CLARENCE HAMILTON. 1917. A new species of *Somatothlora* (Odonata) with notes on the *cingulata* group. Canadian Entom., vol. 49, pp. 229-236, pl. 13, textfigs. 1-4, 25-47.

KIRBY, W. F. 1890. A synonymic catalogue of Neuroptera Odonata or dragonflies, with an appendix of fossil species. London, Gurney and Jackson, pp. x + 1-202.

MARTIN, RENÉ. 1906. Collections Zoologiques du Baron Edm. de Selys-Longchamps. Catalogue systematique et descriptif. Cordulines. Fasc. 17, pp. 1-98, pls. 1-3.

ID. 1908. Ibid. Aeschnines. Fasc. 18, pp. 1-84, pls. 1-2.

MUTTKOWSKI, RICHARD A. 1910. Catalogue of the Odonata of North America. Bull. Public Mus. Milwaukee, vol. 1, art. 1, pp. 1-207.

SELYS-LONGCHAMPS, Baron EDMOND DE (with H. A. Hagen). 1857. Monographie des Gomphines. Separate, pp. viii + 1-460, pls. 1-23. 1858, Mem. Soc. Sci. Liege, vol. 11, pp. 257-720.

WALKER, E. M. 1912. The North American dragonflies of the genus Aeshna. Univ. Toronto Studies, Biol. Ser. no. 11, pp. viii + 1-213, pls. 1-28.

ID. 1925. The North American dragonflies of the genus Somatochlora. Univ. Toronto Studies, Biol. Ser. no. 26, pp. 1-202, pls. 1-35.

A New Species of Coelus Eschscholtz. (Coleoptera: Tenebrionidae).

By FRANK E. BLAISDELL, SR., Stanford Medical School and Associate in Research, California Academy of Sciences, San Francisco, California.

Coelus gracilis new species.

Gracilis belongs to the Globosus Group [1] which also includes *globosus* Lec., *grossus* Csy. (*solidus* Csy., immature form) and *saginatus* Csy.; also the insular species *pacificus* and *remotus* of Fall. It is the smallest species of the group thus far discovered, some specimens scarcely exceeding in size the larger ones of *Coelomorpha* Csy. that occur in a similar habitat in the vicinity of Ensenada, Lower California, Mexico. All of the species belonging to the tribe Coelini burrow in sand dunes or sandy areas, under vegetation in littoral regions along the Pacific coast. Mainland species of the Globosus Group are known, from the data at hand, to occur only in the vicinity of Ensenada northward to Santa Cruz, California. It is interesting to discover a species as far north as Antioch, Contra Costa County, California; the author knows of no record of species belonging to the group under discussion occuring north of Santa Cruz.

[1] Blaisdell, Synopsis and review of the species of Coelus. Trans. Amer. Ent. Soc., XIV, p. 318, 1919.

Form oval to slightly oblong-ovate, small in size and about one-fifth longer than wide. Color nigro-piceous to ferruginous or paler due to immaturity; antennae and palpi flavo-testaceous, legs more or less piceous. Cilia along sides of body, long, dense, erect and fulvous, with bristling hairs of the same kind on the legs; hairs not occurring on the anterior pronotal margin and head behind the frontal suture, as in the species of the Ciliatus Group.

Head relatively moderate in size, twice as wide as length of an antenna; epistoma relatively large and more prominent laterally than the eyes, sides arcuately convergent anteriorly, angles broadly rounded, apical margin moderately deeply sinuate in middle two-fourths, sinus rather evenly arcuate, surface gradually arising from the frontal suture, somewhat convex and more or less impressed within the apical margin lateral to the sinus, rather closely punctate especially toward the sides, punctures moderate in size; frontal suture well marked, straight in middle three-fifths with lateral fifths arcuately attaining the eyes. Frons somewhat convex, broadly flattened in the central area, rather densely punctate, most so laterally and against the suture, punctures slightly larger and stronger than on the epistoma. Eyes coarsely facetted. Antennae in length equal to one-half the width of the epistoma, last four segments moderately compressed and somewhat gradually widened except the last; first segment not visible from above, second and third obconical, the former slightly larger than the latter, both a little longer than wide, fourth to the seventh inclusive slightly wider at apex and briefly constricted at base, as long as wide; last four segments forming a feebly defined club, the eighth triangular and as long as wide, ninth and tenth transverse the latter slightly wider, eleventh smaller, narrower and subquadrate.

Pronotum transverse, slightly more than twice as wide as long and twice as wide as the head; base less than one-half wider than apex, sinuation of the latter broad, moderately deep and rather straight in middle two-fourths, apical angles prominent and well rounded, margin beaded; sides broadly arcuate and moderately convergent anteriorly, margin beaded and continuously so with that of the apex; base transverse, margin thin and coriaceous, angles rather narrowly rounded; disk moderately convex from side to side, almost evenly punctate, punctures small, well defined and separated by a distance equal to about three to six times their diameter, larger and denser in the submarginal area, the latter not widely impressed, each

puncture with a moderately long and more or less semi-erect hair. Sides less than moderately explanate. Surface finely alutaceous.

Elytra more or less moderately inflated posteriorly, about one-fifth longer than wide and three times as long as the pronotum; sides subparallel and moderately arcuate, apex subogival; disk strongly convex from side to side, less so in basal one-third, strongly so and arcuately declivous apically, surface moderately closely punctate, punctures separated by a distance equal to two to four times their diameter, smaller and quite simple in the central area, becoming a little larger and feebly muricate laterally and apically; each puncture with a fine subrecumbent, short hair which becomes coarser at the periphery.

Measurements.—(Types) Male: length 5 mm.; width 3 mm. Female: length 7 mm.; width 4 mm.

Holotype, female, no. 4698, and *allotype,* male, no. 4699, in the collection of Dr. E. C. Van Dyke, Museum of the California Academy of Sciences; collected at Antioch, Contra Costa County, CALIFORNIA, April 24, 1938, by Dr. Van Dyke. Thirty-four *paratypes* with same data; two are to be placed in the collection of the American Entomological Society, Philadelphia. Largest specimen measures: Length 7 mm., width 4 mm.; smallest: length 4.5 mm., width 2.5 mm.

The author has figured the genitalia of *Coelus ciliatus* Esch.,[2] genotype of the genus.[3] Those of *gracilis* are of the same phylogenetic type, but show some specific differences. The aedeaga[4] of the female is testaceous in color and feebly chitinized, the lateral plates have a few very fine punctures, each with a long fine erect seta, none have been observed on the dorsal and ventral plates in the specimens examined.

Gracilis is to be recognized by its small size, smooth integument, fine and nearly simple punctation and with a facies somewhat like that of a small *Eusattus dubius* Lec.; the sides of the pronotum are but feebly explanate.

[2] Synopsis and review of the species of Coelus. Trans. Amer. Ent. Soc., xiv, p. 318, 1919, pl. xxxii.

[3] Eschscholtz, Zool. Atlas, Heft iii, p. 5, pl. 14, fig. i, 1829.

[4] In Transactions of the American Entomological Society 59, p. 223, I have proposed "that the term aedeaga be applied to the combination of sclerites in the female sexual segment."

A New Holopyga from the Western United States (Hymenoptera: Chrysididae).

By Wm. G. Bodenstein, Cornell University,
Ithaca, New York.

In a recent loan of Chrysididae from the United States National Museum there is a large series of the following new species of *Holopyga*.

Holopyga taylori*, new species.

Head: In anterior aspect transverse, oval; in dorsal aspect slightly wider and about as long as the pronotum. Vertex with shallow, well-spaced punctures becoming very fine and widely spaced on the occiput. Facial basin with a moderate vertical depression, polished, and with traces of transverse striations; punctured at the sides similarly to the vertex. Clypeus elevated between the antennae, with a few very fine punctures. Mandibles with three teeth. Antennae with the second joint of the flagellum slightly longer than the fourth.

Thorax: Prothorax punctured similarly to the occiput, the fine punctures interspersed with large, shallow, almost obsolete punctures; the punctuation not much heavier at the sides than on the disc. Mesothorax with very fine, well-separated punctures, becoming close and dense at the anterior ends of the parapsidal sutures; the punctures becoming sparser toward the posterior end of the segment. Mesopleurae with the punctuation indistinct and with traces of fine striations. Scutellum smooth and polished with some traces of obsolete punctures. Postscutellum reticulately punctured on the disc with a small, oblique, rectangular area on each side which is transversely striated. Propodeum reticulately punctured; oblique foveolae roughly triangular in shape with the broad base of the triangle at right angles to the lateral angles of the propodeum; about in the middle of the base of the triangle there is a low, blunt projection. Between the foveolae is a rugose, almost striate area below which there is a vertical ridge. Lateral angles of the propodeum short and acute. Tegulae dark brown, smooth and polished. Wings with the discoidal cells completely lacking; not infuscated. Claws with two inner teeth.

Abdomen: In dorsal aspect the abdomen is egg-shaped, about three-quarters as wide as long; all segments are of about equal length on the median line. First segment with fine

*I name this species for Dr. Leland H. Taylor whose notes and material on the Chrysididae have been of inestimable value to me.

punctures and fine transverse striations, impunctate in the center of the anterior border. Second and third segments punctured as the first, the punctures becoming a little closer together posteriorly. Third abdominal segment truncate at the apex, the truncate portion roughly about one-third the width of the segment at the base. Apical margin very thin, not membranous and not turned under.

Color: Blackish-bronze in color with blue and green reflections on sides of thorax and abdomen. Tibiae and tarsi light brown.

Female: The female differs from the male as follows: vertex and occiput evenly punctured with fine punctures, slightly larger than those of the male. Facial basin with the transverse striations more distinct. Thorax more evenly punctured; mesopleurae with more distinct punctures. Scutellum more distinctly punctured at the sides. Punctures of the propodeum continued evenly between the oblique foveolae. Abdomen not as heavily punctured, the transverse striations very faint. Face metallic blueish-green in color.

Length: 2-3.5 mm.

Type.— ♂ ; Hollister, Twin Falls County, IDAHO. August 7, 1930. (Plot 3a.) [United States National Museum.] *Allotype.*— ♀. The same locality, August 21, 1930. (Outside.) [United States National Museum.]

Paratypes. — Seventeen males, twenty females, as follows: IDAHO: 4 ♂ ; 1 ♀ ; Hollister, Twin Falls County; June 13 to July 24, 1931; (D. E. Fox; on *Sophia sophia* and *Salsola pestifera*) ; 2 ♂ ; August 13, 1929; 5 ♀ ; August 7, 1930; 1 ♀ ; July 30, 1929; (F. B. Hinnenkamp; on *Salsola parviflora).* 2 ♂ ; Adelaide, July 25, 1928; (on *Sophia sophia*) ; and 1 ♂ ; September 14, 1929; on (*Salsola pestifera*) ; and 1 ♀ ; July 21, 1927; (on *Salsola filipes*). 2 ♀ ; Burley, June 16, 1931; also August 7, 1929; (on *Salsola pestifera,* at edge of cultivated area). 1 ♂ ; Castelford, June 28, 1928; (on *Sophia sophia*) ; and 1 ♀ ; August 25, 1927; (on *Atriplex rosea*). 1 ♀ ; Berger; September 5, 1930; (on *Salsola pestifera*). 1 ♂ ; Kimama; May 15, 1931; (F. B. Hinnenkamp; on *Norta altissima*). [All U. S. N. M.]

MISSOURI: 3 ♀ ; St. Louis; January 8, 1920; (Phil Rau; numbers 3812 and 3813) ; [U. S. N. M.]

CALIFORNIA: 1 ♀ San Diego County; April; (Coquillett) ;

[U. S. N. M.]. 6♂ ; 3♀ ; Emeryville, October 26 and November 3, 1938; (J. W. MacSwain).

This species may be easily distinguished from the previously described North American species of *Holopyga* by its small size, its reduced punctuation, the absence of the discoidal cells, the two teeth in the tarsal claw, and by the apical margin of the third abdominal segment which is very thin and not turned under. A further discussion of this and a related species will be made in a revisionary paper now in preparation.

A Treatment for Crumpled Wings of Odonata Nymphs to Disclose Their Venation.

By MAY K. GYGER, Ithaca, New York.

Dragonfly nymphs may often be determined to the genus by means of the venation in the wing pads. However, in the latter part of the ultimate nymphal instar the wings are much crumpled and their characters thereby obscured. In the course of some work on nymphs from the Philippine Islands a very peculiar and unique specimen with wing pads badly crumpled was found and Dr. Needham suggested to the author to see whether anything could be done to stretch the wings so that the venation could be seen. The following method is the outcome of much trial and error and, while probably not the best possible, does give usable results.

To prepare an anisopterous wing pad for study, clip it from the nymph and remove the outer layer by cutting along its entire hind margin with a razor blade, then tease the wing out with a dissecting needle. Immerse the wing in boiling water for about three minutes and next place it in twenty drops of a one percent solution of potassium hydroxide. The membrane will begin to expand in a few seconds. Leave it in this solution until it has ceased swelling. Remove, place in boiling water again and float therefrom onto an ordinary glass slide. If the specimen has been in alcohol for a long time further treatment is necessary. Holding the slide in both hands with the fingers underneath and the thumbs on top, gently pull and

stretch the entire wing in all directions with the edges of the balls of the thumbs. Continue to do this until the wing dries. It will adhere to the slide and should be nearly the size of the adult wing. Now it may be made into a dry mount or mounted in balsam or, if desired, may be replaced in the vial of alcohol with the nymph from which it came. To study the wing at any later time after it has been in alcohol, it may need to be placed in boiling water for one or two minutes, placed on a slide and stretched again as described above. A dry mount usually seems the most satisfactory means of permanent preservation.

A zygopterous wing pad requires somewhat simpler but more delicate treatment. After removing the nymphal skin place the wing in a hot one-half of one percent solution of potassium hydroxide. Let it remain there until it has ceased to expand and remove immediately to hot water and thence to a slide where it can be teased out with needles.

Anyone who wishes to identify rare specimens is strongly advised to practice first with some common forms since both speed at the right moments and very gentle handling are necessary to avoid ruining the preparation.

Acknowledgment and thanks are due to Dr. Julio García-Díaz, of the University of Puerto Rico, who really did most of the work on the method for Zygoptera nymphs.

Apis griseocollis DeGeer—Bombus separatus Cresson. (Hymenoptera: Bombidae.)

In connection with my work on bumblebees, several years ago I ran across a note by W. A. Schulz (*Berlin. Entom. Zeitschr.* 57: 59, 1912) which stated that the type of *Apis griseocollis* DeGeer was still in the Museum in Stockholm and was a bumblebee.

H. J. Franklin in his Monograph "The Bombidae of the New World" (*Trans. Am. Ent. Soc.* XXXVIII, 1912) I, p. 177, puts the name given by DeGeer, with a question-mark, as synonym of *Bombus impatiens* Cresson. The characters given by Schulz eliminate this possibility, but they are in several respects not complete enough to indicate clearly the species

involved. There is, for example, no mention of the position of ocelli. Schulz himself was unable to determine the species concerned from Handlirsch's paper ("Die Hummelsammlung des k. k. Naturhistorischen Hofmuseums" in *Ann. K. K. Naturh. Hofmus.* III, Wien 1888).

To clear up finally this uncertainty, I shipped a determined lot of bumblebees to Stockholm and asked Professor Sjöstedt for his kind help. At his request Dr. A. Roman of the Museum compared the type with the material sent by me and informed me as follows:

The type of "*Apis griseocollis* DeGeer" is a worker of the species known to us now as *Bombus separatus* Cresson.

This conclusion, Dr. Roman informed me, he had reached years ago, and was able now to corroborate it from the material shipped by me.

I rather reluctantly publish this note as I am not fond of nomenclatorial changes. As the type is still in existence and the case is a clear one I see, unfortunately, no way to avoid the application of our existing nomenclatorial rules.

By P. Peter Babiy, Cornell University, Ithaca, New York.

A Substitute Name for Patera Schwarz (Hymenoptera: Meliponidae).

Recently in a paper on the stingless bees of British Guiana, I proposed the name *Patera* (Bull. Amer. Mus. Nat. Hist., LXXIV, p. 475, [1938]) for a subgenus of the Meliponid genus *Trigona*. Dr. V. S. L. Pate has brought to my attention that this name has unfortunately been used twice previously,—first in 1837 by R. P. Lesson (Prod. Medus., P. 34) for a Coelenterate, and later in 1850 by J. C. Albers (Die Heliceen, p. 97) for a subgenus of the land snail *Helix*. Therefore, to replace my preoccupied *Patera*, I adopt his suggestion that the name *Partamona* be adopted, with the same genotypic species, i. e. *Melipona testacea* Klug, 1807 [=*Trigona* (*Partamona*) *testacea* (Klug)]. The name *Partamona* is taken from a tribe of Indians of Arawak stock inhabiting the hinterland of British Guiana.—Herbert F. Schwarz, American Museum of Natural History, New York.

A New Species of Aphodius from New Jersey (Coleoptera: Scarabaeidae).

By MARK ROBINSON, 1533 So. 56th Street,
Philadelphia, Pennsylvania.

Aphodius odocoilis, n. sp.

1930. *Aphodius crassulus* Sim (not Horn, 1870), Journ. N. Y. Ent. Soc., XXXVIII, p. 142.

This is the species mentioned by Sim as being *crassulus* Horn but the concave elytral intervals will serve to distinguish this species from *crassulus* and allied species.

Robust, very convex, sides parallel, piceous, shining.

Head tuberculato-rugose in front, punctate posteriorly with barely a trace of tubercules. Clypeus emarginate with distinct denticles on each side.

Prothorax slightly wider than long, sides parallel, with the hind angles obtusely rounded, basal marginal line distinct. Rather sparsely punctured at the middle the punctures becoming denser laterally, the punctures are moderately deep with a few finer punctures intermixed.

Elytra parallel. Striae sparsely, crenately, punctured. Intervals distictly concave at base gradually flattening towards apex, finely and sparsely punctured. Humeri denticulate.

Anterior tibiae smooth in front, finely crenulate above the third tooth. First joint of hind tarsi equal to next three.

Length, 2.7 to 3.7 mm.; Breadth, 1.4 to 2.0 mm.

Type. — Mt. Misery, NEW JERSEY, March 22, 1937 (Mark Robinson). In author's collection.

Paratypes. — 30, Mt. Misery, N. J., various dates between March 22, 1937 and June 6, 1938 (Mark Robinson). Mt. Misery, N. J., March 27, 1938 (L. J. Bottimer). Mt. Misery, N. J., May 30, 1938 (L. W. Saylor). Ballingers Mill, N. J., June 3 and 11, 1929 (R. J. Sim) Sim and Wenzel.

Paratypes have been deposited in the collection of the following: Academy of Natural Sciences of Philadelphia, Museum of Comparative Zoology, U. S. National Museum, American Museum of Natural History, H. C. Fall, C. A. Frost, L. W. Saylor, R. C. Casselberryi, O. L. Cartwright and L. J. Bottimer.

This species has been taken only in deer and rabbit excrement.

List of Titles of Publications Referred to by Numbers in Entomological Literature in Entomological News.

1. Transactions of The American Entomological Society. Philadelphia.
2. Entomologische Blätter, red. v. H. Eckstein etc. Berlin.
3. Annales Sci. Naturelles, Zoologie, Paris.
4. Canadian Entomologist. London, Canada.
5. Pysche, A Journal of Entomology. Boston, Mass.
6. Journal of the New York Entomological Society. New York.
7. Annals of the Entomological Society of America. Columbus, Ohio.
8. Entomologists' Monthly Magazine. London.
9. The Entomologist. London.
10. Proceedings of the Ent. Soc. of Washington. Washington, D. C.
11. Deutsche entomologische Zeitschrift. Berlin.
12. Journal of Economic Entomology, Geneva, N. Y.
13. Journal of Entomology and Zoology. Claremont, Cal.
14. Archivos do Instituto Biologico, Sao Paulo.
15. Annales Academia Brasileira de Sciencias. Rio de Janeiro.
17. Entomologische Rundschau. Stuttgart, Germany.
18. Entomologische Zeitschrift. Frankfurt-M.
19. Bulletin of the Brooklyn Entomological Society. Brooklyn, N. Y.
20. Societas entomologica. Stuttgart, Germany.
21. The Entomologists' Record and Journal of Variation. London.
22. Bulletin of Entomological Research. London.
23. Bollettino del Lab. di Zool. gen. e agraria della Portici. Italy.
24. Annales de la société entomologique de France. Paris.
25. Bulletin de la société entomologique de France. Paris.
27. Bolletino della Societa Entomologica Italiana. Genova.
28. Ent. Tidskrift utgifen af Ent. Föreningen i Stockholm. Sweden.
29. Annual Report of the Ent. Society of Ontario. Toronto, Canada.
30. Archivos do Instituto de Biologia Vegetal, R. d. Janeiro.
31. Nature. London.
32. Boletim do Museu Nacional do Rio de Janiero. Brazil.
33. Bull. et Annales de la Société entomologique de Belgique. Bruxelles.
34. Zoologischer Anzeiger, hrsg. v. E. Korschelt. Leipzig.
35. The Annals of Applied Biology. Cambridge, England.
36. Trans. Royal Entomological Society, London. England.
37. Proceedings of the Hawaiian Entomological Society. Honolulu.
38. Bull. of the Southern California Academy of Sciences. Los Angeles.
39. The Florida Entomologist. Gainesville, Fla.
40. American Museum Novitates. New York.
41. Mitteilungen der schweiz. ent. Gesellschaft. Schaffhausen, Switzerland.
42. The Journal of Experimental Zoology. Philadelphia.
43. Ohio Journal of Sciences. Columbus, Ohio.
44. Revista chileña de historia natural. Valparaiso, Chile.
45. Zeitschrift für wissenschaftliche Insektenbiologie. Berlin.
46. Zeitschrift für Morphologie und Ökologie der Tiere. Berlin.
47. Journal of Agricultural Research. Washington, D. C.
49. Entomologische Mitteilungen. Berlin.
50. Proceedings of the U. S. National Museum. Washington, D. C.
51. Notulae entomologicae, ed. Soc. ent. Helsingfors. Helsingfors, Finland.
52. Archiv für Naturgeschichte, hrsg. v. F. Strand. Berlin.
53. Quarterly Journal of Microscopical Science. London.
54. Annales de Parasitologie Humaine et Compareé. Paris.
55. Pan-Pacific Entomologist. San Francisco, Cal.

56. "Konowia". Zeit. für systematische Insektenkunde. Wien, Austria.
57. La Feuille des Naturalistes. Paris.
58. Entomologische Berichten. Nederlandsche ent. Ver. Amsterdam.
59. Encyclopédie entomologique, ed. P. Lechevalier. Paris.
60. Stettiner entomologische Zeitung. Stettin, Germany.
61. Proceedings of the California Academy of Sciences. San Francisco.
62. Bulletin of the American Museum of Natural History. New York.
63. Deutsche entomologische Zeitschrift "Iris". Dresden.
64. Zeitschrift des österr. entomologen-Vereines. Wien.
65. Zeitschrift für angewandte Entomologie, hrsg. K. Escherich. Berlin.
66. Report of the Proceedings of the Entomological Meeting. Pusa, India.
67. University of California Publications, Entomology. Berkeley, Cal.
68. Science. New York.
69. Physis. Revista Soc. Argentina Cien. Nat. Buenos Aires.
70. Entomologica Americana, Brooklyn Entomological Society. Brooklyn.
71. Novitates Zoologicae. Tring, England.
72. Revue russe d'Entomologie. Leningrad, USSR.
73. Mem. Instituto Butantan. Sao Paulo, Brazil.
74. Sbornik entomolog. národniho musea v Praze. Prague, Czechoslovakia.
75. Annals and Magazine of Natural History. London.
77. Comptes rendus heb. des séances et mémo. de la soc. de biologie. Paris.
78. Bulletin Biologique de la France et de la Belgique. Paris.
79. Koleopterologische Rundschau. Wien.
80. Lepidopterologische Rundschau, hrsg. Adolf Hoffmann. Wien.
82. Bulletin, Division of the Natural History Survey. Urbana, Illinois.
83. Arkiv för zoologie, K. Svenska Vetenskapsakademien i. Stockholm.
84. Ecology. Brooklyn.
85. Genetics. Princeton, New Jersey.
87. Archiv für Entwicklungs mechanik der Organ., hrsg. v. Roux. Leipzig.
88. Die Naturwissenschaften, hrsg. A. Berliner. Berlin.
89. Zoologische Jahrbücher, hrsg. v. Spengel. Jena, Germany.
90. The American Naturalist. Garrison-on-Hudson, New York.
91. Journal of the Washington Academy of Sciences. Washington, D. C.
92. Biological Bulletin. Wood's Hole, Massachusetts.
93. Proceedings of the Zoological Society of London. England.
94. Zeitschrift für wissenschaftliche Zoologie. Leipzig.
95. Proceedings of the Biological Soc. of Washington, Washington, D. C.
97. Biologisches Zentralblatt. Leipzig.
98. Le Naturaliste Canadien. Cap Rouge, Chicoutimi, Quebec.
99. Mélanges exotico-entomologiques, Par Maurice Pic. Moulins, France.
100. Bulletin Intern., Acad. Polonaise Sci. et Lett. Cracovie.
101. Tijdschrift voor entomologie. Nederland. Ent. Ver., Amsterdam.
102. Entomologiske Meddelelser, Entomologisk Forening, Copenhagen.
103. Journal of the Kansas Entomological Society, Lawrence, Kansas
104. Revista de la Sociedad entomologica Argentina, Buenos Aires.
105. Revista Entomologia, Sao Paulo, Brazil.
106. Anales Sociedad Cientifica Argentina, Buenos Aires.
107. Proc., Royal Entomological Society, London.
108. Revista, Col. Nac. Vicente Rocafuerte, Guayaquil.
109. Arbeiten uber morpholog. und taxonom. ent. aus Berlin-Dahlem.
110. Arbeiten ueber physiolog. u. angewandte ent. aus Berlin-Dahlem.
111. Memorias do Instituto Oswaldo Cruz. Rio de Janeiro.
112. Anales del Instituto de Biologia Mexico.
113. Entomologische Beihefte aus Berlin Dahlem.
114. Occasional Papers of the Museum of Zoology, University of Michigan.
115. Memorias de la Soc. Cubana de Hist. Nat. Havana, Cuba.
116. Parasitology. Ed. Keilin and Hindle. London.

Current Entomological Literature

COMPILED BY V. S. L. PATE, LAURA S. MACKEY and E. T. CRESSON, Jr.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. All continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

Note. References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the list of Periodicals and Serials published in our January and June issues. This list may be secured from the publisher of Entomological News for 10c. The number of, or annual volume, and in some cases the part, heft, &c., the latter within ( ) follows; then the pagination follows the colon :

Papers published in the Entomological News are not listed.

GENERAL. — **Anduze, P.** — Viaje por el Oriente de Venezuela. [Bol. Soc. Venezolana Cien. Nat.] 4: 282-307, ill. **Cresson, E. T.** — Centenary, by S. R. Raganathan. [Current Sci., Calcutta] 6: 929-930. **Darlington, P. J.** — Was there an Archatlantis? [90] 72: 521-533, ill. **Eddy, B.** — Insect zoo as a wildlife conservation project. [68] 88: 215-216. **Jones, Weber & Dowden.**—Effectiveness of imported insect enemies of the satin moth. [U. S. D. A. Circ.] no. 459; 24 pp., ill. **Martin, C. H.**—Effect of sunlight and of location of logs on the beetle infestations of elm logs. [19] 33: 195-203, ill. **Phelps, W. H.** — La expedicion del American Museum of Natural History at Monte Auyantepuy. [Bol. Soc. Venezolana Cienc. Nat.] 4: 251-265, ill. **Portevin, G.**—Ce Qu'il Faut Savoir des Insectes. 188 pp., ill. Lechevalier, Paris. **Rothschild, Lord.**—In memory of, by K. Jordan. [71] 41: 1-41, ill. **Uvarov, B. P.**—Fourth International Locust Conference. [31] 142: 174-175.

ANATOMY, PHYSIOLOGY, ETC. — **Anonymous.** — Female wasp fixes sex of hatch from her eggs. [J. Tenn. Acad. Sci.] 13: 247. **Carpenter & Eltringham.** — Audible emission of defensive froth by insects; with an appendix on the anatomical structures concerned in a moth. [93] 108A: 243-252, ill. **Chauvin, B.**—Morphologie et pigmentation externes de Schistocerca gregaria (transiens dissocians). [Bull. Soc. Hist. Nat. Afr. Nord.] 29: 249-267, ill.

Eggers & Gohrbanat.—Hypogymna morio—ein Sonderfall —in der Desetzmassigkeit phyletischer Korrelationen? [89] Abt. Syst. 71: 264-276, ill. **Grandjean, F.**—Remarques sur la terminologie des divisions du corps chez les Acariens. [Bull. Mus. Nat. Hist. Nat., Paris] 9: 373-378. **Grasse & Lesperon.**—Notes histologiques et biologiques sur un larve de Coleoptere Termitophile, Troctonotus silvestrii, n. sp. [Arch. Zool. Exp. Gen., Paris] 79: 463-486, ill. **Hadorn, E.** —Die degeneration der Imaginalscheiben bei letalen Drosophila-larven der Mutation "lethal-giant." [Rev. Suisse Zool.] 45: 425-429, ill. **Hennig, W.**—Beitrage zur Kenntnis der Kopulationsapparates und der Systematik der Acalyptraten. [109] 5: 201-213, ill. **Hurlbut, H. S.**—A study of the larval chaetotaxy of Anopheles walkeri (Culicidae). [Amer. J. Hygiene] 28: 149-173, ill. **von Lengerken, H.**—Beziehungen zwischen der Ernahrungsweise und der gestaltung der mandibeln bei den larven der Silphini (Coleo.). [34] 122: 171-175, ill. **Lison, L.**—Le systeme malpighiens de Araeocerus fasciculatus (Coleo: Phytophaga). [Ann. Soc. R. Zool. Belg.] 68: 103-120, ill. **Lutz, F. E.**—The insect glee club at the microphone. [Natural History] 42: 338-345, ill. **Mahler, H.**— Histologische untersuchungen uber die spinndrusen einiger spinnen. [46] 34: 439-498, ill. **Orosi-Pal, F.**—Studien uber die Bienenlaus (Braula caeca, Dipt.). [Zeitschr. Parasitenk.] 10: 221-238, ill. **Paulian, R.**—Contribution a l'etude quantitative de la regeneration chez les Arthropodes. [93] 108A: 297-383, ill. **Rait, W. L.**— A study of the growth of the fore wing-sheaths in Eusthenia spectabilis (Plecop.) [Trans. & Proc. R. Soc. So. Australia] 61: 63-73. Further remarks on terminology relation to the growth of the fore wing-sheath in the larva of Eusthenia spectabilis (Plecop.). [Trans. & Proc. R. Soc. So. Australia] 61: 158. **Rivnay, E.**—Moisture as the factor affecting wing development in the citrus aphis, Toxoptera aurantii. [22] 28: 173-179. **Rosenthal, H.**— Azione delle temperature elevate sui vari stadi di sviluppo di Dermestes vulpinus (Coleo.). [Boll. Zool.] 9: 37-39. **Sen, P.**—On the biology and morphology of Rhabdophaga saliciperda (Dipt: Cecidomyid.), a common pest of willows. [89] Abt. Anat. 65: 1-36, ill. On the structure (anatomical and histological) of the full grown larva of Rhabdophaga saliciperda (Dipt: Cecidomyid.). [89] Abt. Anat. 65: 37-62, ill. **Smreczynski, S.**— Entwicklungsmechanische Untersuchungen am Ei des Kafers Agelastica alni. [89] Abt. All. Zool.

59: 1-59, ill. **Subkleir, W.** — Zur morphologie der larven von Melolontha hippocostani (Scarab.). [52] 7: 270-304, ill. **Tazelaar, M.**—Some studies on regeneration and relative growth of limbs in mayfly larvae. [93] 108A: 257-265, ill. **Thomsen, E.**—Uber den Kreislauf im flugel der Musciden mit besonderer berucksichtigung der akzessorischen pulsierenden organe. [46] 34: 416-438, ill. **Tischler, W.**—Zur Okologie der wichtigsten in Deutschland an Getreide schadlichen Pentatomiden. [46] 34: 317-366, ill. **Wigglesworth, V. B.** — "Climbing organs" in insects. [31] 141: 974-975.

ARACHNIDA AND MYRIOPODA. — Berland, L. — Les Araignees. [Livr. Nat. no. 43] xii + 173 pp., Delamair et Bontelleau, Paris. **Bristow, W. S.** — The classification of Spiders. [93] 108B: 285-321, ill. (k). **Everly, R. T.**—See under Coleoptera. **Grandjean, F.** — Observations sur les Acariens. [Bull. Mus. Nat. Hist. Nat., Paris] 10: 64-71, ill. **Jacot, A. P.**—Four new Arthropods from New England. [Amer. Midl. Nat.] 20: 571-574, ill. **Kaston, B. J.**—New spiders from New England with notes on other spp. [19] 33: 173-191, ill. North American spiders of the gen. Agroeca. [Amer. Midl. Nat.] 20: 571-74, ill. (k*). **de Toledo Piza, S.** — Novas especies de Aranhas myrmecomorphas do Brasil e consideracoes sobre o seu mimetismo. [Rev. Mus. Paulista] 23: 309-319, ill.

THE SMALLER ORDERS OF INSECTS.—Carpenter, F. M. — Two Carboniferous insects from the vicinity of Mazon Creek, Illinois (Palaeodictyoptera and Protorthoptera). [Amer. J. Sci.] 36: 445-452, ill., (*). **Clay, T.** — A revision of the genn. and spp. of Mallophaga occurring on Gallinaceous birds. Pt. I.—Lipeurus and related genn. [93] 108B: 109-204, ill., (k*). **Clay & Rothschild.**—Ectoparasites from captive birds. [71] 41: 61-73. **Gloyd, L. K.** —A n. sp. of the gen. Libellula from Yucatan. [114] no. 337: 1-4, ill. **Guimares & Lane.**—Contribucoes para o conhecimento das Mallophagas das aves do Brasil. VI.—Novas especies parasitas de Tinamiformes. [Rev. Mus. Paulista] 23: 1-22, ill. **von Hagen, W.**—Contribution to the biology of Nasutitermes (s. S.) (Isoptera). [93] 108A: 39-49, ill., (S). **Jacot, A. P.** — See under Arachnida. **Keler, S.** — Baustoffe zu einer monographie der Mallophagen. 1.— Ueberfam. Trichodectoidea. [N. Act. Leopoldina] 5: 395-

467, ill. Ueber einige Mallophagen aus Paraguay und Kamerun. [109] 5: 228-241, ill., (*). **Krey, J.**—Untersuchungen zur Okologie der Trichopterenlarven unter besonderer Berucksichtigung der Moorbewohner Schleswig-Holsteins. [Schrift. Naturwissensch. Ver. S. H.] 22:271-318. **Thompson, G. B.**—The Lice of Petrels. Pt. 1.—The elongate forms. [75] 2: 481-493. On two spp. of Mallophaga from Phaethon rubrocauda roseotincta. [75] 2: 459-465, ill., (S).

ORTHOPTERA.—Chopard, L.—La Biologie des Orthopteres. [Encyl. Ent.] Ser. A, 20; 541 pp., ill., Lechevalier, Paris. **Harvey, L. A.**—Preliminary note on the relations between grasshoppers and the re-colonisation of denuded heath and moor-land vegetation. [Trans. Soc. Brit. Ent.] 5: 291-297, ill.

HEMIPTERA.—Beamer, R. H.—Two n. spp. of Allygianus (Cicadellidae). [55] 14: 153-155, ill. **Caldwell, J. S.**—The Jumping Plant lice of Ohio (Chermidae). [Ohio Biol. Surv. Bull. 34] 6: 228-282, ill. (k*). **DeLong, D. M.**—Three n. spp. of Texananus (Cicadellid.). [55] 14: 185-186. **Drake & Harris.**—A new Rhagovelia from Cuba. [55] 14: 152. **Hungerford, H. B.**—A n. sp. of Neocorixa (Corixidae). [19] 33: 170-172, ill. **Lepage, H. S.**—Catalogo dos Coccideos do Brasil. [Rev. Mus. Paulista] 23: 327-491. **Osborn, H.**—The Fulgoridae of Ohio. [Ohio Biol. Surv., Bull. 35] 6: 283-349, ill., (k). **Pratt, R. Y.**—Observations on the striding habits of the Gerridae. [55] 14: 156. **de la Torre-Bueno, J. R.**—Stenomacra marginella H.-Sch. and S. cliens Stal, a taxonomic note and a correction (Pyrrhocor.). [19] 33: 192-193, (k).

LEPIDOPTERA.—Brubaker, L. H.—The life of the mourning cloak [Nature Mag.] 31: 354-357. **Kohler, P.**—Neotropischer Psychiden aus dem Deutschen Entomologischen Institut. [109] 5: 246-248, ill., (*). **Lichy, R.**—Lepidopteros nuevos para Venezuela. [Bol. Soc. Venezolana Cien. Nat.] 4: 266-278, ill. (*). **Mendes, D.**—Nota sobre Maruca testulalis (Pyralid.). [Rodriguesia] 3: 167-169, ill. **Schaus, W.**—N. spp. of American Heterocera in the U. S. National Museum. [75] 2: 504-517, (S). **Travassos, L.**—Sobre um novo typo de Syssphingidae. [Rodriguesia] 3: 199-201, ill.

DIPTERA. — **Alexander, C. P.** — New or little known Tipulidae: Neotropical Species. [75] 2: 416-438. **Antunes & Lane.** — Um novo Aedes, Aedes (Ochlerotatus) pennai, encontrado em Sao Paulo. [Rev. Mus. Paulista] 23: 605-614, ill. **Ayrosa Galvao & Lane.**—Notas sobre os Nyssorhynchus de Sao Paulo (Culicidae). [Rev. Mus. Paulista] 23: 23-28, ill. **Beckman, H.**—A simple feeding device for Culex pipiens in avian malaria studies. [68] 88: 114, ill. **Guimares, L. R.** — Sobre as especies sul Americanas do genero Trichobius (Streblidae). [Rev. Mus. Paulista] 23: 651-666, ill., (k). **Hall, D. G.**—N. genn. and spp. of South American Sarcophagidae. [109] 5: 253-259, ill. **Hennig, W.** —See under Anatomy. **Hurlbut, H. S.**—See under Anatomy. **James, M. T.** — A second species of Scoliopelta (Stratiomy.). [55] 156-157. **Lane & Antunes.**—Notas sobre o genero Mansonia subgen. Rhynchotaenia, com descripcao de uma nova especie (Culic.). [Rev. Mus. Paulista] 23: 225-232. **Lane & Ayrosa Galvao.**—Sobre a posicao systematica de Anopheles gilesi Neiva, 1908 (Culic.). [Rev. Mus. Paulista] 23: 29-34, ill. **Seguy, E.**—Fam. Muscidae. [Gen. Insect.] Fasc. 205; 604 pp., ill., (k). **Steyskal, G.**—The precopulatory behaviour of the male of Dolichopus omnivagus (Dolichopodid). [19] 33: 193-194.

COLEOPTERA.—Bierig, A. — Un Trogatus nuevo de Panama (Staphyl.). [115] 12: 243-244, ill. **Blaisdell, F. E.**— A n. sp. of Listus from the Sequoia National Park, California (Melyr.). [55] 14: 165-167. **Borchmann, F.**—Fam. Lagriidae. [Gen. Insect.] Fasc. 204; 561 pp., ill., (k). **Cazier, M. A.**—A new California Polyphylla with notes concerning the variability of certain characters within the genus. [55] 14: 161-164. **Darlington, P. J.**—The American Patrobini (Carabidae). [70] 18: 135-183, ill., (k*). **Everly, R. T.** — Spiders and insects found associated with sweet corn with notes on the food habits of some spp. I.—Arachnida and Coleoptera. [43] 38: 136-148, ill. **Hatch, M. H.**— Report on the Coleoptera collected by Dr. Victor B. Scheffer on the Aleutian Islands in 1937. [55] 14: 145-149. **Hatch & Beer.**—A n. sp. of Dicerca (Buprestidae) from Washington. [55] 14: 151. **Hustache, A.**—Curculionides nouveaux de l'Amerique meridionale, qui se trouvent dans le Deutsches Entomologisches Institut. [109] 5: 265-288. **Kleine, R.**—Neue Brenthiden aus dem Deutschen Entomologischen Institut. [109] 5: 289-291, ill. **Korschefsky, R.**— Eine neue Cycloneda-Art aus Brasilien. [109] 5: 264, ill.

Lane, F.—Notas sobre Lamiides Neotropicos e descripcao de especies novas. [Rev. Mus. Paulista] 23: 631-642, ill. Esboco monographico dos Anoplodermideos. [Rev. Mus. Paulista] 23: 153-224, ill. **Lane & Jesus Moure.**—Os Cholineos do Museu Paulista. I.—Descripcao de algunas especies novas. [Rev. Mus. Paulista] 23: 612-630, ill. **Lane & Pessoa.**—Sobre a validade especifica do Canthon dives Harold, 1868 (Scarab.). [Rev. Mus. Paulista] 23: 643-649, ill. **von Lengerken, H.**—See under Anatomy. **Linsley, E. G.**—Longevity in the Cerambycidae. [55] 14: 177. **McCauley, R. H.**—A revision of the genus Microrhopala in North America, north of Mexico (Chrysomel.). [19] 33: 145-169, ill., (k). **Maulik, S.**—On the structure of larvae of Hispine beetles. [93] 108B; 49-71, ill., (k). **Pessoa & Lane.**—Notas sobre o genero Phanaeus (Scarab.) com a descripcao de uma nova especie. [Rev. Mus. Paulista] 23: 323-326, ill. **Pratt, R. Y.**—One hour's collecting of Scaphinotus on Whidby. [55] 14: 167. **Schedl, K. E.**—Die Einteilung der Pityophthorinae (Rhynchophora). [52] 7: 157-188, ill., (Sk*). **Van Dyke, E. C.**—Calendra (Sphenophorus) minimus Hart in Calif. [55] 14: 187.

HYMENOPTERA.—Cockerell, T. D. A.—A new Bembecine wasp from San Nicolas Isl., California. [55] 14: 150. **Mickel, C. E.**—Photopsoid Mutillids collected by Dr. K. A. Salman at Eagle Lake, Calif. [55] 14: 178-185. **Mitchell, T. B.**—Notes on the Megachilid subgenera Xeromegachile and Derotropis. [55] 14: 168-177, ill. **Weyrauch, W.**—Recherches sur la chaleur dans le nids d'Hymenopteres sociaux. [Mem. Soc. R. Sci. Liege] 2: 307-394.

Occurrence of Aphodius scrofa Fabricius in Western Maine (Coleop.: Scarabaeidae).

Two specimens of this species were given me by Mr. W. J. Brown, Dominion of Canada Entomologist, which were taken by him at Aldouane, New Brunswick, July 6, 1928. The western march is indicated by the capture of five specimens at Weld, Maine, on July 2, 1938, in a single cow dropping. None of the other droppings in the pasture contained specimens and two days later there were none present in the dropping where the five were found.

Weld is situated about 25 miles south east of the Rangeley Lakes in the western part of the state.

C. A. Frost, Framingham, Massachusetts.

Entomological News for December, 1938, was mailed at the Philadelphia Post Office, January 11th, 1939.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Wanted—Chrysalids of Papilio ajax and philenor, cocoons of Rothschildia orizaba and jorulla. Buy or exchange. Newark Entomological Society. Curator, Chas. Rummel, Green Village Rd., R. D. 2, Madison, New Jersey.

Have large list of Lepidoptera wants and offers. Send me yours. Carpenter, Box 1344, Hartford, Conn.

Geometers Wanted from all parts of United States and Canada, for cash or in exchange for butterflies. Noctuids or other Geometers. Edwin I. Guedet, P. O. Box 305, Napa, California.

Mr. Robert "Colegio de la Salle, Vedado, Habana, Cuba," offers Coleoptera, Lepidoptera, Land and Sea Shells, Bird Skins, Botanical Specimens, Cuban Cactus and cleaned "Diatom" Material.

Wanted for cash or exchange any pamphlets dealing with the American Hesperiidae. K. J. Hayward, Entomologist, Concordia Experiment Station, E. R. Argentine.

Wanted—*Megathymus streckeri* from S. W. Colo. or New Mex. Also from Texas. Also *M. yuccae* from Colo. Offer in exch. *Meg. leussleri* Holl. (Nebr. race *streckeri*). R. A. Leussler, 115 S. 52nd St., Omaha, Nebr.

Wanted—Cantharidae of the United States, esp. those of the genus Cantharis. Will exchange named beetles of Oregon. K. M. Fender, 930 S. Davis St., McMinnville, Oregon.

Desired—Ichneumonidae. Especially Tryphoninae of the world for revisionary work. Will exchange or purchase acceptable material. Andrew R. Park, Jr., c/o State Dept. of Public Health, 1800 Fillmore Street, Chicago, Illinois.

Lucanidæ of the world. Will determine, exchange or purchase. Desire especially neotropical material for revisional work. Bernard Benesh, Box 159, North Chicago, Ill.

60 Cocoons, carefully fed, of **Samia nokomis** for Comstock's California Butterflies and 40 for Holland's Butterflies, Vol. 2. Both either new or second, or will exchange **nokomis** cocoons for desirable butterflies, **Papilio, Argynnis** or **Megathymus.** Jack Dennis, Beulah, Manitoba, Canada.

Desired—Dolichopodidae of western United States and Canada. Will determine for privilege of retaining duplicates. F. C. Harmston, Entomology Dept., Utah Agric. College, Logan, Utah.

Wanted.—Chrysididae and Cleptidae of the world for cash or for exchange and determination, especially Nearctic and Neotropical material, for revisional purposes. W. G. Bodenstein, Dept. of Entomology, Cornell University, Ithaca, N. Y.

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